



## DBC series

Full Line Up of Heavy Duty Horizontal Boring Mill



# DBC Series design to enhance customer's productivity



## Speedy Response to the Market Request

1. Complete Full line up from Part Machining to Mold & Die of highly Productive Purpose.
  2. Various Attachment line up preparative countermeasure
- Increasing high Value-added Machining

## Customer Oriented effort to Improvement

1. Operation Improvement by New Control Panel and Change of Various Manipulating Switches.
2. Enhanced Reliability through simplifying Wiring & Easy Maintenance.



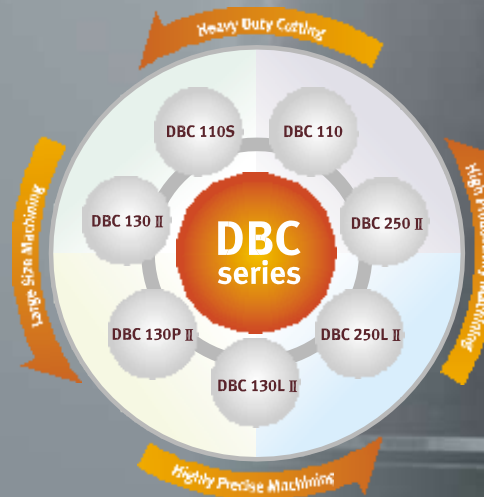
## DBC series

### New Line-up & Naming of DBC Series

# DBC 130L II

- **Suffix Letter**  
(None) : Standard  
L : Extended stroke  
P : Plain table  
S : Compact
- **Spindle diameter (mm)**  
110S, 110, 130 II  
**Quill diameter (mm)**  
250 II
- **Machine Structure**  
C : Column moving  
T : Table moving  
F : Floor type
- **Doosan NC Boring**

### Market Segmentation



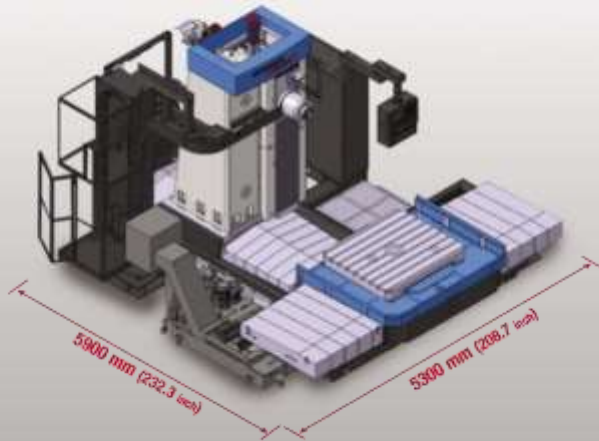
DOOSAN has poured all of its efforts and energies to achieve high performance and rigidity. In the meantime, wide selections of optional accessories are available to fulfill your special applications. We guarantee that you will be totally satisfied with DBC Series.

# Variable Line-up DBC series

Full Line up of DBC series for Variable Machining.

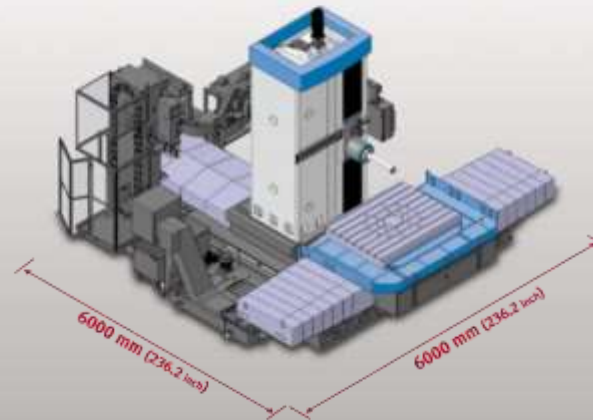
## Cost Effective Model DBC 110S

- ✦The most cost reduction benefit will be provided
- ✦Offering middle size workpiece solution for various machining



## Compact Type Model DBC 110

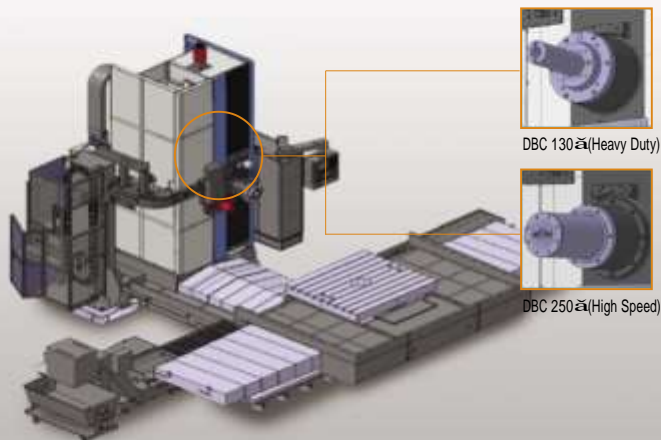
- ✦Designed by compact size and minimized space for high speed heavy cutting
- ✦Approaching to the table center through W-axis stroke
- ✦For various machining performance, high speed spindle and heavy work load capacity are provided



## General & Conventional Type Model NEW

DBC 130ă / DBC 250ă

- ✦ Production over 1000 machines
- ✦ More stable and improved model for conventional job and heavy working



## Heavy Load Work-piece Model NEW

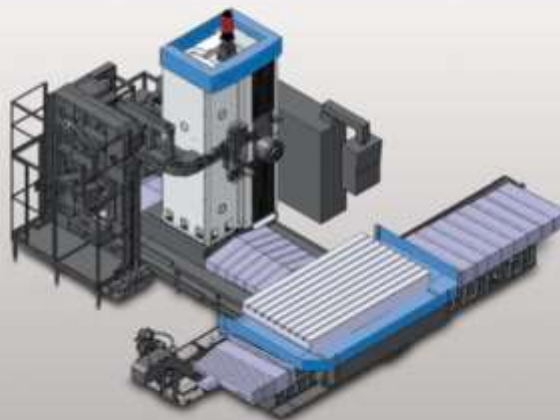
DBC 130Pă

- ✦ Plain type table for heavy load performance
- ✦ Without B-axis

### Plain type table

Table length  
3000 mm (118.1 inch)

Load capacity  
20000 kg (44091.8 lb)



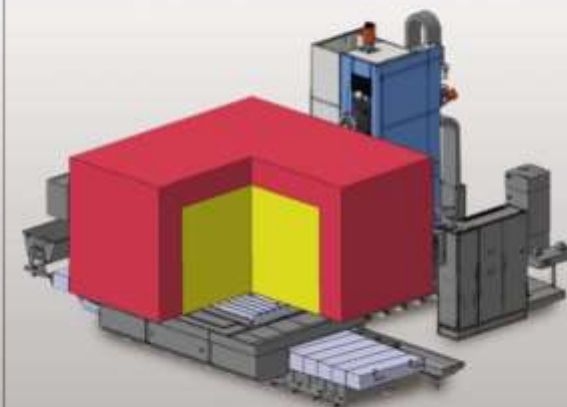
## Large Sized Work-piece Model NEW

DBC 130Lă / DBC 250Lă

- ✦ Wide work area through axes extension
- ✦ Column moving type for big size machining
- ✦ Multitasking for various work

### Travel (mm) X/Y/Z

4000 / 2500 / 2000 mm  
(157.5 / 98.4 / 78.7 inch)



# High Performance DBC series

High speed spindle of high quality and rigidity  
helps increase the efficiency and performance of the machine.



## High Speed and Powerful Spindle

Improved thermal stability through perfect cooling control

Use of ultra precision paired spindle bearings ensures high speed, heavy-duty and high precision machining. Perfectly wrapped cooling system of geared box spindle (Except DBC 250 (L)  $\checkmark$ ) for heavy duty machining and built-in spindle (On DBC 250  $\checkmark$ ) for high speed machining.

Max. spindle speed

DBC 110S

**3000** r/min

DBC 110

**4000** r/min

DBC 130(L)(P)  $\checkmark$

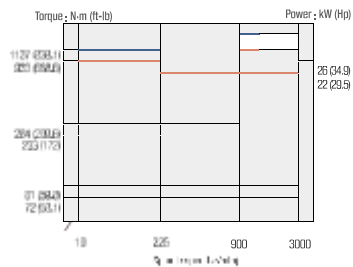
**2500** r/min

DBC 250(L)  $\checkmark$

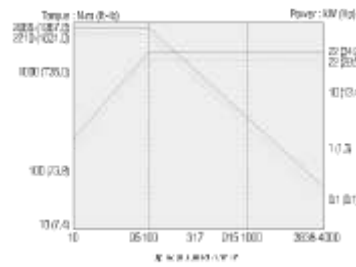
**6000** r/min

## Spindle power-torque diagram

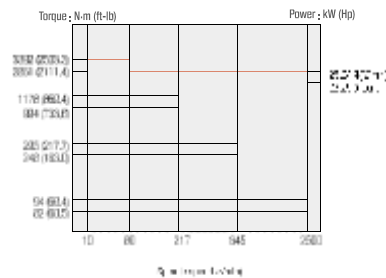
DBC 110S : 26/22 kW (35/30Hp)



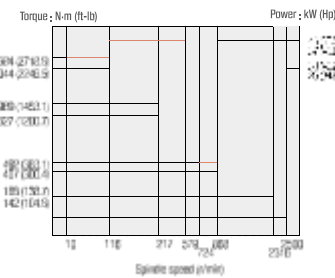
DBC 110 : 26/22 kW (35/30Hp)



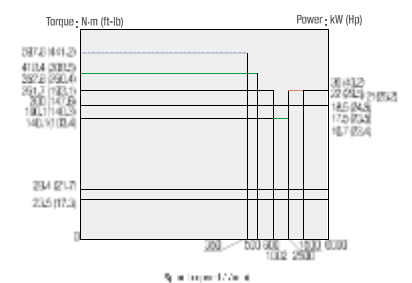
DBC 130(L)(P)  $\checkmark$  : 26/22 kW (35/30Hp) **std.**



DBC 130(L)(P)  $\checkmark$  : 45/37 kW (60/49Hp) **opt.**



DBC 250(L)  $\checkmark$  : 30/22 kW (40/30Hp)





## DBC 110

High speed boring spindle



## DBC 130(L)(P) ㄱ

Heavy duty cutting boring spindle



## DBC 250(L) ㄱ

High speed built-in quill spindle



High-torque and powerful spindle for heavy duty cutting

- ✦W-axis clamping device as standard
- ✦High-power main spindle available

Model	Spindle speed r/min		Spindle motor kW (Hp)		Torque N.m (ft.lb)
	Standard	Option	Standard	Option	
DBC 110	4000	-	26/22 (35/30)	30/22 (40/30)	2668 (1968) <small>std</small> 3060 (2257) <small>opt</small>

High-torque and powerful spindle for heavy duty cutting

- ✦High-power main spindle available

Model	Spindle speed r/min		Spindle motor kW (Hp)		Torque N.m (ft.lb)
	Standard	Option	Standard	Option	
DBC 130(L)(P) ㄱ	2500	-	26/22 (35/30)	30/22, 45/37 (40/30), (60/49)	3392 (2503) <small>std</small> 3940 (2960) <small>opt</small> 3684 (2718) <small>opt</small>

High speed Built-in spindle for high precision machining

- ✦Rigid structure for quill feeding
- ✦Grease-typed lubrication for the spindle bearings
- ✦Stable thermal growth of the spindle bearings despite a long run

Model	Spindle speed r/min		Spindle motor kW (Hp)		Torque N.m (ft.lb)
	Standard	Option	Standard	Option	
DBC 250(L) ㄱ	6000	-	30/22 (40/30)	-	598 (441)

# High Rigidity DBC series

Stable bed and column assemblies are designed heavy duty machining and durability.



## Enhanced Rigidity

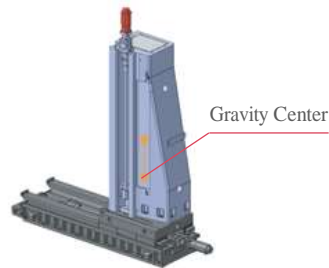
The two piece bed is rigid and heavily ribbed Meehanite. These castings remain stable even under the heaviest cutting conditions. Fine grained Meehanite cast iron is used for its excellent vibration absorbing characteristics. The table is fully supported by the saddle in all positions and there is no table overhang. All axes have highly rigid and precise box guideways.

## Rigidity of the column

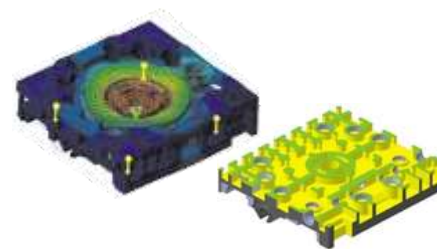
Lowered the center of gravity for minimized the vibration (Z-axis)



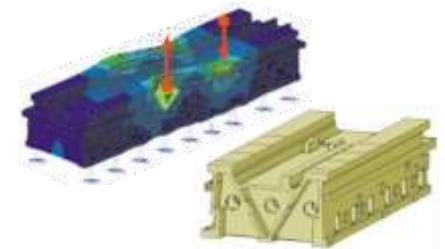
## High Rigid Structure Design of Considering the Machining Capacity



Lower center of gravity of the column to minimize the vibration of the column moving.  
↑The Y-axis clamp device is attached to the standard.



Appropriate Rib design of the Table & Table base to minimize deformation under Max. Load



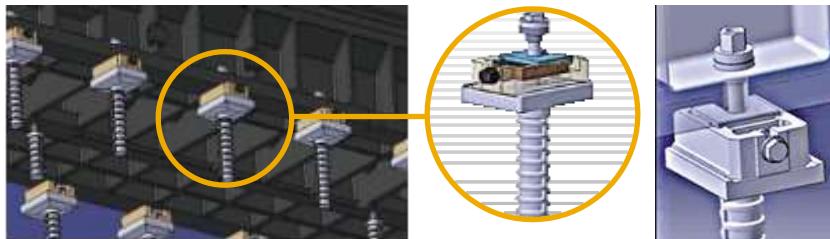
Bed internal design of the M-Type rib minimize deformation and vibration



# Machine Structure

## Strengthened foundation plan

Inserted ribs reinforce the structural rigidity and dynamic damping characteristics to external load and flowing stress. In any operating conditions, the machine can be maintained under optimal condition.



All foundation level blocks ensure life time guarantee on precision and easy & fast installation work.

\* Except DBC 110S

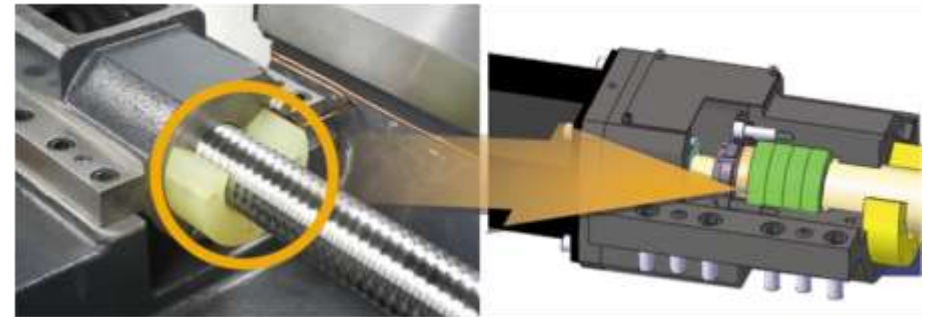
## Enhanced rigidity of the axes

Narrow guide system makes Minimized twisting moment effect (X-axis & Z-axis) and Decreased table shaking



## Big diameter ball screw & 4 rows bearing

The 4 rows bearing has increased machine rigidity and decreased heat generation of ball screw.



# Superb Accuracy DBC series

High Precision NC Index Table (0.001° : B-Axis)



## Rotary Table

DBC 130(L)ă, DBC 250(L)ă  
DBC 110S, DBC 110

High precision table 90°±5 s

- B-axis rotary encoder equipped as standard
- Automatic backlash adjusting mechanism



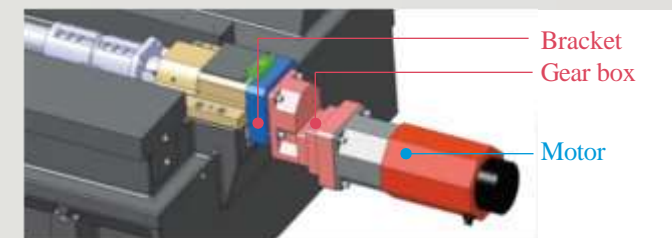
Locating pin (Positioning at each 90°)

## Reduction Gear Box for High Torque (X/Z)

DBC 130Lă / DBC 130Pă(X AXIS) / DBC 250Lă std.  
DBC 110S / DBC 110 / DBC 130ă / DBC 130Pă(Z AXIS) / DBC 250ă opt.

To increase thrust force by using servo reducer

DBC series



# ATC & Magazine

DBC series

User friendly design for operator.

## Servo Driven ATC opt.

Tool Magazine & carriage by servo control will be accomplished higher reliability, speed smooth operation and reducing noise.

### Servo tool magazine & servo carriage



Automatic tool changer



Servo tool magazine

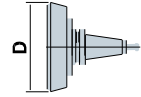
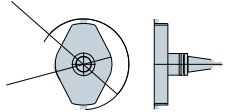
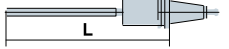
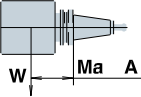


Servo carriage

### Acceptable tool dimensions



Tool magazine

	Spec.	Shape
Max. Tool Diameter	Facing Tool D=ø250mm	
	Boring Tool D=ø400 mm (15.8 inch) [*ø600 mm (23.6 inch)] <span>opt.</span>	
Max. Tool Length	L = 600 mm (23.6 inch)	
Max. Tool Weight	W = 25 kg (55.1lb) W = 30 kg (66.1lb) <span>opt.</span>	

Allowable moment : 34 N·m

Please attention to cutting edge direction and tool shape in case of Max. Boring tool

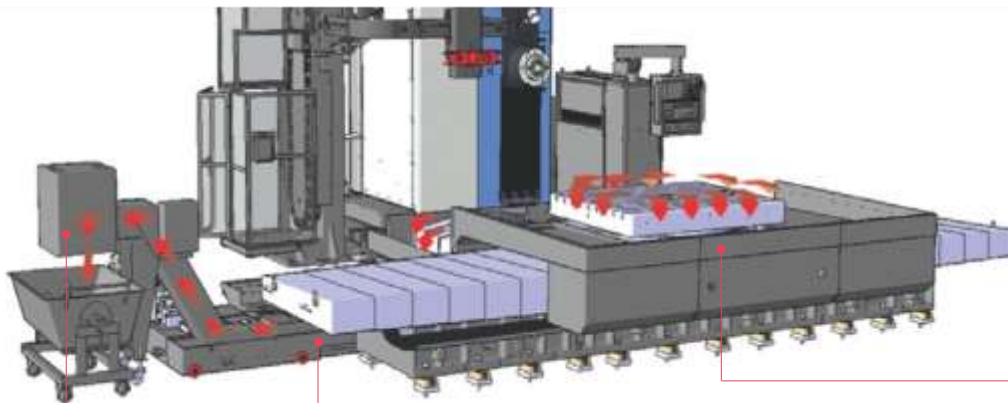
# Easy Chip Disposal

## DBC series

Chip treatment from the viewpoint of productivity improvement and environmental countermeasure is important. DBC series offer a variety of chip control equipment to provide enhanced accuracy and better chip removal capabilities.

### Easy Chip Removal Structure

The completely enclosed DBC series guarantee the confinement of chips and coolant to the inside of the machining area. Chips fall into the removable forward mounted chip pan for easy disposal.



Chip pan



Chip conveyor **opt.**



Coil conveyor  
DBC 110



Hinged belt conveyor  
(DBC 110S, DBC 130(L)㉮, DBC 130(P)㉮, DBC 250(L)㉮)

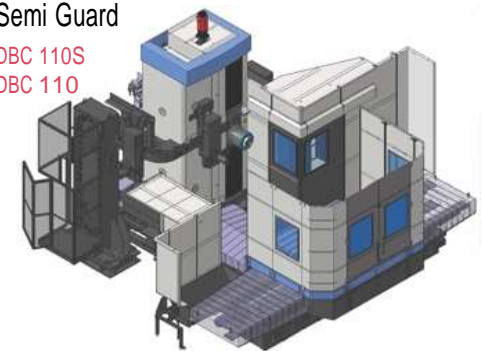


Coolant gun **opt.**

### Coolant Splash Guard

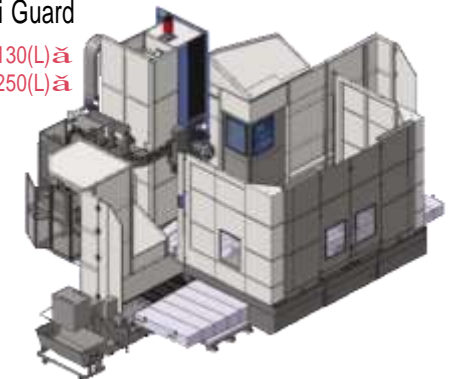
#### Semi Guard

DBC 110S  
DBC 110



#### Semi Guard

DBC 130(L)㉮  
DBC 250(L)㉮





# Optional Equipment DBC series

## Various Optional Equipments

Depending upon the customer's request, a special development is possible.



Angle Head (Manual) (L=365)



Long Type Angle Head (Manual) (L=660)



Universal head (Manual)



Face plate (Manual)



Indexable Angle Head (90 ° index)



Spindle support \*

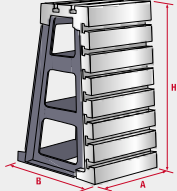
\* : For use ATC with attached spindle support, please contact Doosan.



Facing head (Cogsdill) \*

- Manual / Automatic attach available

\* : For more details, please contact Doosan.



A	B	C
450 (17.7)	600 (23.6)	400 (15.8)
500 (20)	1000 (39.4)	550 (21.7)
750 (29.5)	1250 (49.2)	750 (29.5)
1000 (39.4)	2000 (78.7)	1000 (39.4)

Unit : mm (inch)

Angle plate (4 types)



# Advanced CNC system (FANUC-31i) DBC series

Applied cutting edge technology for machine control



## Standard of nano control

High speed and quality realization by nano control and Cutting edge servo technology

## Easy Operation NC

### Compatible control key setting

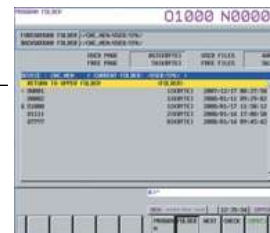
Control keys are developed for easy operation by soft keys which are separated vertical and horizontal display choice and control choice.

### Mistake control protection function

- Data in/out put check function
- Check message when data renewal
- Confirm of Data delete
- Check when program operation

### File management & editing function similar to that of a PC

Naming of programs with up to 32 characters  
Paging subprograms with file names  
Program management by folder.



### Memory card slot

- DNC operated function by CF Memory card
- Custom macro function, Sub program call
- Data procedure and editing



Compact flash card

## Easy to Use Operation

Peripheral equipment which contains frequently used operational devices is standardized.

- Mono lever jog switches when try to set-up large size machine , very easily can do it

- Mono lever jog switches



- Portable MPG
- MPG with LCD display **opt.**
- ATC OP panel **opt.**



## Monitoring & Managing Function

### Doosan tool load monitoring **opt.**

- Inform to operator tool wear or break, when some cases occur. It is designed for protecting tool&work-piece. also it can save tooling list that belong the each works.



### Doosan tool management **opt.**

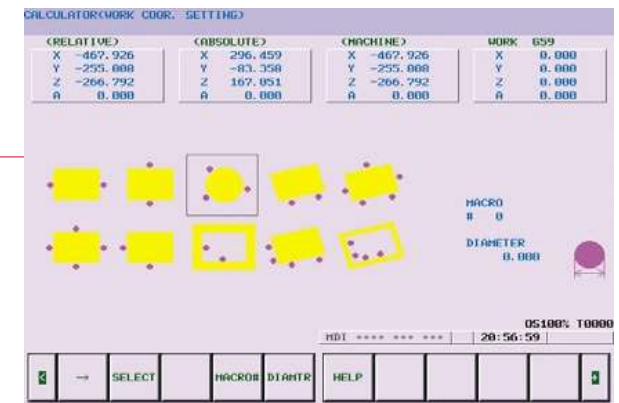
- Users can see which number of tools is stored in each magazine pockets. the status of each tool are displayed, tool wear, tool break, tool life etc. also has pre-checking function



## Easy Set-up Guidance with Touch Sensor (OMP60) **opt.**

The work coordinate system can be set easily and simply by getting the tool or test bar in touch with work and making operations on the screen.

Also it can be used for the automatic measuring probe.



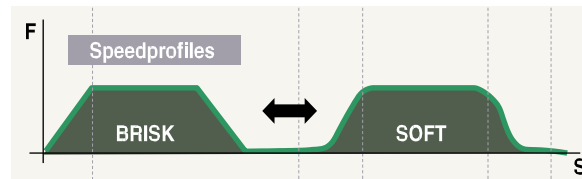
# Optional Function DBC series

# Support Function for Maintenance

## Work load counter control std.

This function will help upgrading machining efficiency. if customer select proper M-Code according to weight of the work piece, machine can decide itself best moving pattern of the table. And machining can make progress by this decision.

M-Code	Work Load	DBC 110	DBC 130A	DBC 130(L)	DBC 130(P)	DBC 250A	DBC 250(L)
M380	5 Ton and less	●	●	●	●	●	●
M381	10 Ton and less	●	●	●	●	●	●
M382	15 Ton and less		●	●	●	●	●
M383	20 Ton and less			● <small>opt.</small>	●		

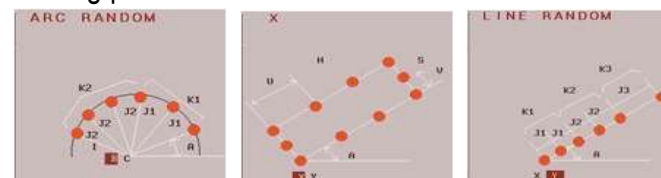


- Alarm Guidance
- Useful Function Setting Screen
- Operation Report
- Thermal Error Compensation
- Program Remaining Cycle Time

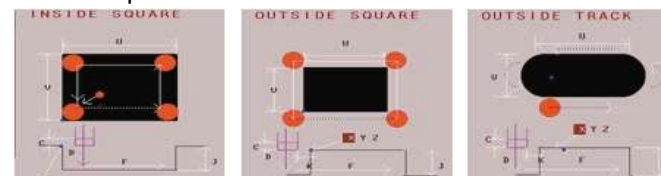
## Easy Pattern Cycle std.

This software provides machining patterns required for part machining. It will greatly reduce programming time and can be used for machining on the shop floor immediately.

### Drilling pattern

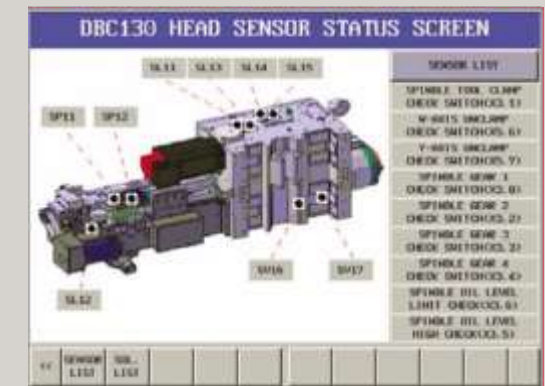


### End-mill pattern



## Easy operation guidance opt.

This Guidance can be to operate machine easily and offer customer five detail function for convenience.



## Periodically checking function std.

- Periodic inspection inform is displayed Consumable goods such as grease and oil.

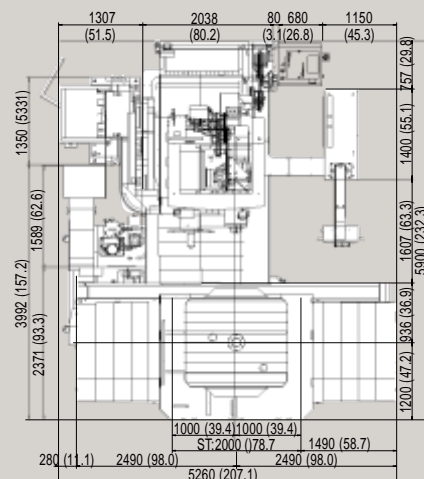


# External Dimensions & Table Dimensions

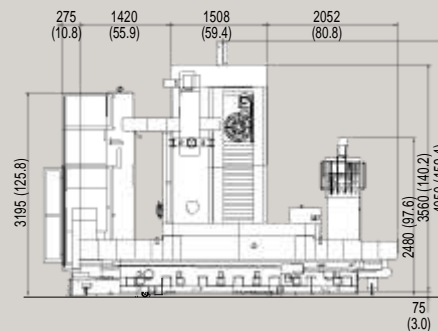
Unit : mm (inch)

## DBC 110S

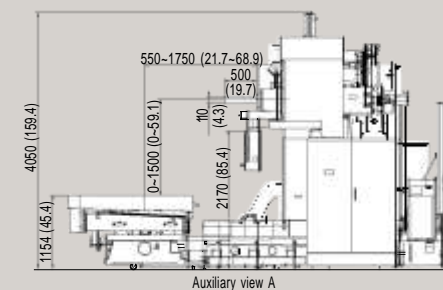
Top View



Front View



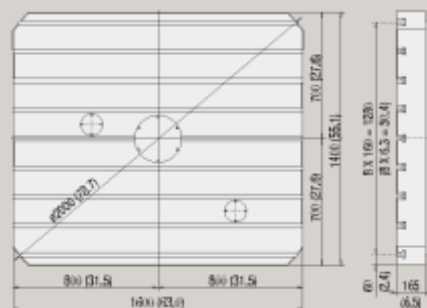
Side View



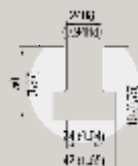
Auxiliary view A

## Table std.

1400 x 1600 (55.1 x 63)

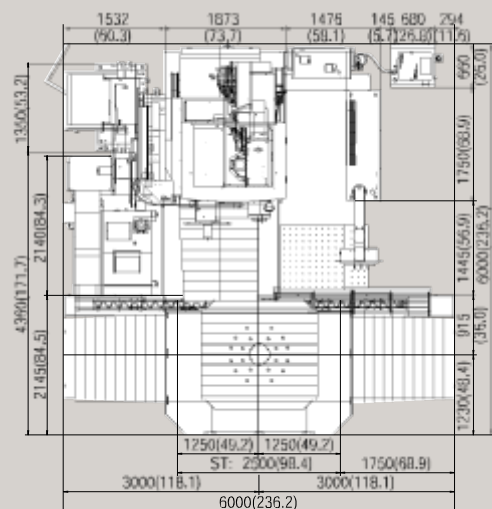


T-Slot

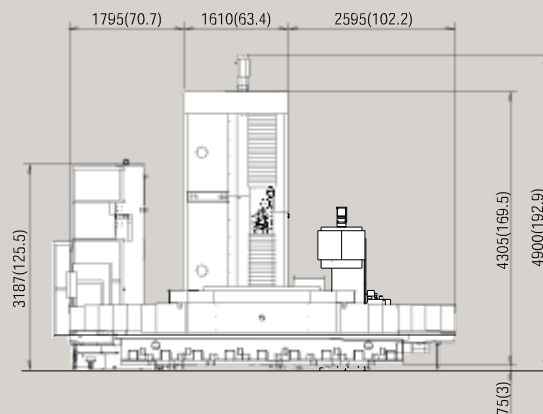


## Unit : mm (inch)

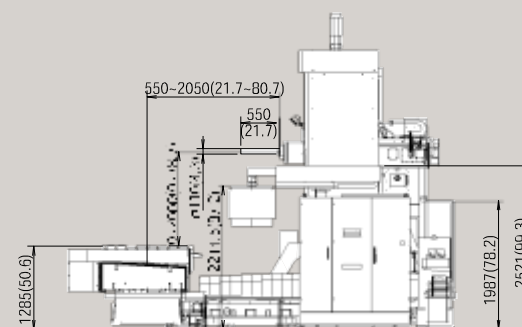
Top View



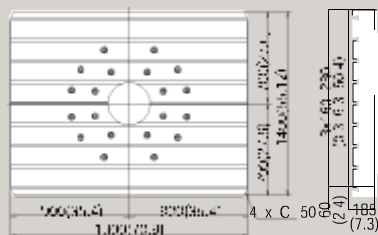
Front View



Side View



1400 x 1800 (55.1 x 70.9)



1600 x 1600 (63 x 63)  
APC loading capacity : 5 tons

## T-Slot



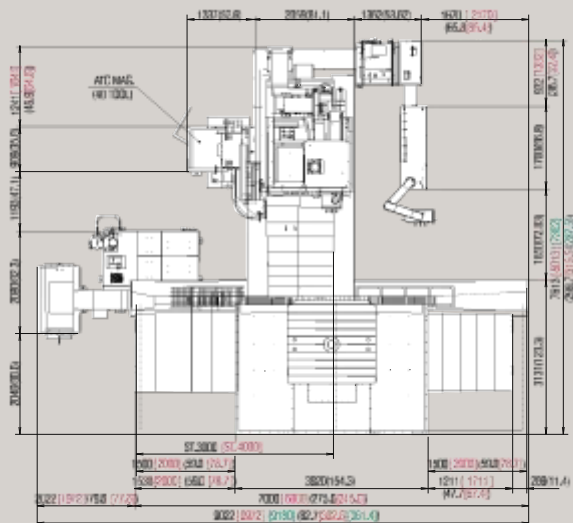
## T-Slot



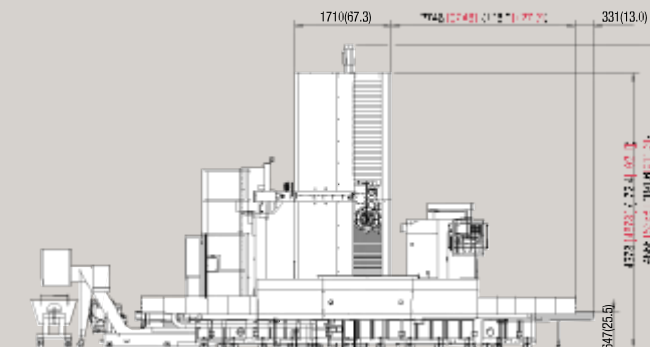


## DBC 130(L)(P)ä

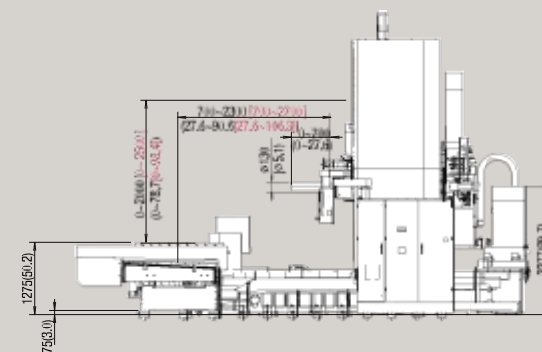
Top View



Front View



Side View

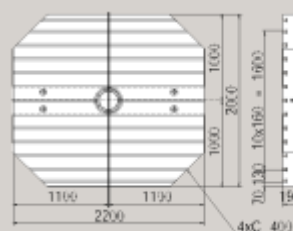
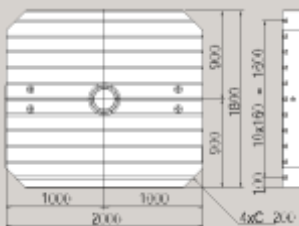
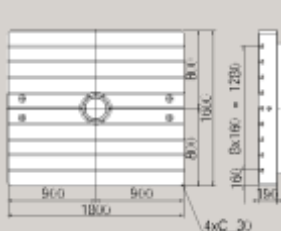
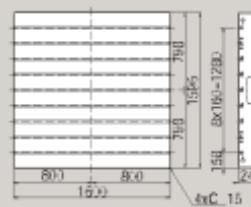


[ ] : DBC 130(L)ä only  
 { } : DBC 130(P)ä only

## DBC 130(L)ä

1600 x 1800 (63 x 70.9) **std.**1800 x 2000 (70.9 x 78.9) **opt.**2000 x 2200 (78.7 x 86.6) **opt.**

T-Slot

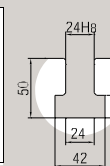
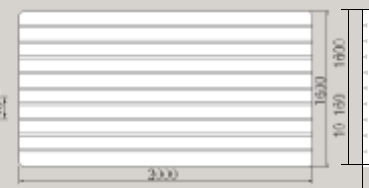
APC Table **opt.**1600 x 1600 (63 x 63)  
APC loading capacity : 10 tons

T-Slot

DBC 130(P)ä **std.**

1600 x 3000 (63 x 118.1)

T-Slot



## Unit : mm (inch)

Top View



T-Slot



# Machine Specifications

	Features		Unit	DBC 110S	DBC 110	DBC 130A	DBC 130LA	DBC 130PA	DBC 250A	DBC 250LA	
Travel	X-axis		mm (inch)	2000 (78.7)	2500 (98.4)	3000 (118.1)	4000 (157.5)	3000 (118.1)		4000 (157.5)	
	Y-axis		mm (inch)	1500 (59)	2000 (78.7)		2500 (98.4)	2000 (78.7)		2500 (98.4)	
	Z-axis		mm (inch)	1200 (47.2)	1500 (59)	1600 (63)	2000 (78.7)	1600 (63)		2000 (78.7)	
	W-axis		mm (inch)	500 (19.6)	550 (21.7)	700 (27.6)			500 (19.7)	500 (19.7)	500 (19.7)
	Distance from spindle nose to table top		mm (inch)	0~1500 (0~59)	0~2000 (0~78.7)			0~2500 (0~98.4)	100~2100 (3.9~82.7)	0~2000 (0~78.7)	0~2500 (0~98.4)
	Distance from spindle nose to table center		mm (inch)	550~1750 (21.7~68.9)	550~2050 (22.7~80.7)	700~2300 (27.6~90.5)	700~2700 (27.6~106.3)	700~2300 (27.6~90.5)	770~2370 (30.3~93.3)	770~2770 (30.3~109.1)	
Table	Table size		mm (inch)	1400 x 1600 (55.1 x 63)	1400 x 1800 (55.1 x 70.9)	1600 x 1800 (1800 x 2000, 2000 x 2200) (55.1 x 70.9 (70.9 x 78.7, 78.7 x 86.6))		1600 x 3000 (63 x 118.1)	1600 x 1800 (1800 x 2000, 2000 x 2200) (55.1 x 70.9 (70.9 x 78.7, 78.7 x 86.6))		
	Swing Diameter	Without semi-S/G	mm (inch)	Ø2500 (Ø98.4)	Ø3400 (Ø133.8)	Ø3900 (Ø153.5)	Ø4800 (Ø188.9)	-	Ø3900 (Ø153.5)	Ø4800 (Ø188.9)	
		Semi-S/G	mm (inch)	Ø2100 (Ø82.6)	Ø2250 (Ø88.5)	Ø3400 (Ø133.8)		-	Ø3400 (Ø133.8)		
	Table loading capacity	1400 x 1600 mm	kg (lb)	7000 (15432.1)	-	-	-	-	-	-	
		1400 x 1800 mm	kg (lb)	-	10000 (22045.9)	-	-	-	-	-	
		1600 x 3000 mm	kg (lb)	-	-	-	-	20000 (44091.8)	-	-	
		1600 x 1800 mm	kg (lb)	-	-	15000 (33068.9)	15000 (33068.9)	-	-	15000 (33068.9)	
		1800 x 2000 mm	kg (lb)	-	-	13000 (28659.7)	13000 (20000) (28659.7(44091.8))	-	-	13000 (28659.7)	
		2000 x 2200 mm	kg (lb)	-	-	12000 (26455.1)	12000 (19000) (26455.1 (41887.2))	-	-	12000 (26455.1)	
	T-slot			9-24H8							
Least command increment			0.001								
Rotating speed		r/min	2		1	1 (0.75)	-	1			
Spindle	Tool shank			ISO #50, 7/24 taper							
	Pull stud			MAS403-P50T-1 / DIN69875 #50 / CAT 50							
	Max. spindle speed		r/min	3000	4000	2500			6000		
	Spindle motor (30min/cont.)		kW (Hp)	26 / 22 (34.9 / 29.5)							
	Boring spindle diameter		mm (inch)	110 (4.3)		130 (5.1)			-		
	Quill diameter		mm (inch)	-							
				250 (9.8)							
Rapid traverse rate	Rapid traverse rate (X / Y / Z)		m/min (ipm)	12 (472.4)		10 (393.7)	10 / 8 / 10 (7 / 8 / 10) (393.7 / 315 / 393.7 (275.6 / 315 / 393.7))	7 / 8 / 10 (276.5 / 315 / 393.7)	10 (393.7)	10 / 8 / 10 (393.7 / 315 / 393.7)	
	W-axis		m/min (ipm)	6 (236.2)			10 (393.7)				
Cutting feedrate	Cutting feedrate		mm/mm (ipm)	1~8000 (1~315)		1~4000 (1~157.5)					
ATC	Tool Storage capacity		ea	40 / 60 / 90							
	Tool shank			MAS403 BT50							
	Max. tool diameter		mm (inch)	Ø130 (Ø600) (Ø5.1 (Ø23.6))							
	Max. tool length		mm (inch)	600 (23.6)							
	Max. tool weight		kg (lb)	25 (55.1)							
	Method of tool selection			Fixed address							
Power source	Electric power supply (rated capacity)		kVA	70							
	Compressed air supply		Mpa (Psi)	0.54 (78.3)							
Machine size	Machine weight		kg (lb)	24000 (52910.2)	36000 (79365.2)	43000 (94797.4)	48000 (50000) (105821.9 (110231.1))	47000 (103616.0)	43000 (94797.4)	48000 (105821.9)	
	Machine dimension (L x W)		mm (inch)	5300 x 5900 (208.7 x 232.2)	6000 x 6000 (236.2 x 236.2)	7650 x 9050 (301.1 x 356.3)	8060 x 10000 (317.3 x 393.7)	7350 x 9200 (289.4 x 362.2)	7650 x 9050 (301.1 x 356.3)	8060 x 10000 (317.3 x 393.7)	
	Machine height		mm (inch)	4050 (159.4)	4900 (192.9)	5000 (196.9)	5400 (212.6)	5000 (196.9)		5400 (212.6)	

Note : { } are optional.

# Standard Feature & Optional Feature

## Standard feature

• Spindle Air Curtain (Only DBC 250(L)㉮)
• Spindle Cooling System
• Spindle Lubrication Device
• Spindle Internal Cooling System (Only DBC 110S, DBC 110, DBC 130(L/P)㉮)
• Axis Gear Box for Y-axis
• B-axis Rotary Encoder
• Automatic Table Clamping Unit
• Automatic Table Locating Pin (each 90° )
• Hydraulic Power Unit
• Y-axis Clamp (Only DBC 110, DBC 250(L)㉮)
• W-axis Clamp (Only DBC 110, DBC 250(L)㉮)
• Tool KIT
• Leveling Blocks & Anchoring Bolts (Except DBC 110S)
• Leveling Bolts & Anchoring Bolts (Only DBC 110S)
• Z-axis Coolant Pan
• Table Chip Pan
• Column Guideway Chip cover
• Slide Way Covers (X/Y/Z)
• Chip Disposal
Chip conveyor & Chip tray
• Main OP. Panel
2-Linkage type
• Portable-MPG
• Work Light (Halogen Lamp) (Only DBC 110S, DBC 110, DBC 250(L)㉮)
• Work Light (LED Lamp) (Only DBC 130(L)㉮)
• Signal Tower
• Foot Switch for Tool Unclamp
• Mono Lever Jog Switches
• Spindle Load Meter

• Spindle Thermal Compensation System (Except DBC 250(L)㉮)
• External M-CODE (4ea)
• Periodical Checking Function
• Actual Spindle Speed Display on LCD
• Self Diagnosis Function
• DSQ1*
• Customer's Manual
• Work Load Counter Control ®
• Easy pattern Cycle
• Linear Scale Feedback System
Absolute Type (Only DBC 110(X AXIS), DBC 250(L)㉮)
• Big Plus ® Spindle (Except DBC 130(L)㉮)

\* Note) DSQ1 : AICC II with High Speed Processing + Machining Condition Selection + Data Server(1GB)

## Optional feature

• Adaptive Feedrate Control Function
• Attachment
Manual Head (L=365)
Manual Long Type (L=660)
Indexable Angle Head (90° Index)
Manual Universal Head (L=500)
Manual Face Plate (ø650)
Spindle Support (DBC 130(L)㉮ : L=310)
(DBC 110S, DBC 110 : L=200)
Attachment Ready (Cogsdill)
Attachment Ready (D'Andrea)
• Coolant systems
Air Blower
MQL System

Coolant Gun
TSC-20bar
High Capacity Type Coolant Pump
Oil Skimmer
• Safety Fence & Interlock Switches
• Coolant Splash Guard
Semi Guard
Auto Door Semi Guard
• Linear Scale Feedback System
Absolute Type (Only DBC 110S, DBC 110(Y, Z AXIS), DBC 130(L/P)㉮)
• ATC (ATC OP. Panel) - 40 / 60 / 90 tools
• APC (APC OP. Panel)
Max. Workpiece Weight DBC 110 : 5ton
DBC 130(L)㉮/250(L)㉮ : 10ton
• Air Gun
• Auto Tool Length Measurement
• Tool Breakage Detect Function
• Master Tool for Auto-Tool Length Measurement
• Auto Workpiece Measurement
• Easy Set Up Guidance ® (with OMP60)
• Master Block gauge for
Auto Workpiece Measurement
• Test Bar (BT 50)
• Chip Disposal
Lift Up Chip Conveyor Hinged Belt Type
Magnetic Scraper Type
Chip Bucket 380L
• Raising Block (250mm)
• Additional 6th Axis

Package #1 : Only Wiring
Package #2 : Hydraulic & Control Ready
Package #3 : Full Opt.
• Angle Plate
450 X 600 X 400mm / 500 X 1000 X 550mm
750 X 1250 X 750mm / 1000 X 2000 X 1000mm
• Edge Locator (Table/ Pallet)
• Big Plus ® Spindle (Only DBC 130(L)㉮)
• CNC Systems (Heidenhain)
• Auto Power Off
• Auto Power On
• Electric Line Filter
• Work Counter
• Total Counter
• Electric Leakage Breaker
• Operator's Call Buzzer
• Electric Box Light
• Electric Box Air con
• 3-MPG (Portable)
• Doosan Tool Load Monitoring
• Doosan Tool Management
• Easy Operation Guidance
• APC Pallet Retract Function
• DSQ2 *
• DSQ3 *
• Speed Limit Control for Attachment
• Machine Warming Up Function
• Center Bush (Ø50mm) (Except DBC 110S)
• Add Y Brake

\* Note) DSQ2 : DSQ1 + Data Server (1GB)

DSQ3 : AICC II with high speed processing + Machine condition selection + Data server (1GB)

←The specifications and information above-mentioned may be changed without prior notice.

←For more details, please contact Doosan.

DBC 110, DBC 130(L)ă, DBC 250(L)ă

### AXES CONTROL

- Controlled axes	5 (X,Y,Z,W,B)
- Simultaneously controllable axes	Positioning(G00)/Linear interpolation(G01) : 3 axes Circular interpolation(G02, G03) : 2 axes
- Backlash compensation	
- Emergency stop / overtravel	
- Follow up	
- Least command increment :	0.001mm / 0.0001(inch)
- Least input increment :	0.001mm / 0.0001(inch)
- Machine lock	all axes / Z axis
- Mirror image	Reverse axis movement (setting screen and M - function)
- Stored pitch error compensation	Pitch error offset compensation for each axis
- Stored stroke check 1	Overtravel controlled by software

## INTERPOLATION & FEED FUNCTION

- 2nd reference point return	G30
- Circular interpolation	G02, G03
- Dwell	G04
- Exact stop check	G09, G61(mode)
- Feed per minute	mm / min
- Feedrate override (10% increments)	0 - 200 %
- Jog override (10% increments)	0 - 200 %
- Linear interpolation	G01
- Manual handle feed(1 unit)	
- Manual handle feedrate	0.1/0.01/0.001mm
- Override cancel	M48 / M49
- Positioning	G00
- Rapid traverse override	F0 (fine feed), 25 / 50 / 100 %
- Reference point return	G27, G28, G29
- Skip function	G31
- Helical interpolation	
- AI Contour Control	200 block preview
- Thread cutting, synchronous cutting	
- Program restart	
- Automatic corner deceleration	
- Feedrate clamp by circular radius	
- Linear ACC/DEC before interpolation	
- Linear ACC/DEC after interpolation	
- Control axis detach	
- Rapid traverse bell-shaped acceleration/deceleration	

- Dual position feedback
- Smooth backlash compensation

## SPINDLE & M-CODE FUNCTION

- M- code function	M 3 digits
- Spindle orientation	
- Spindle serial output	
- Spindle speed command	S5 digits
- Spindle speed override (10% increments)	50 - 150 %
- Spindle output switching	
- Retraction for rigid tapping	
- Rigid tapping	G84, G74
- Polar coordinate interpolation	G12.1 / G13.1
- Scaling	G50, G51

### TOOL FUNCTION

- Cutter compensation C	G40, G41, G42
- Number of tool offsets	200 ea
- Tool length compensation	G43, G44, G49
- Tool number command	T3 digits
- Tool life management	
	Geometry / Wear and Length / Radius offset memory
- Tool offset memory C	

## PROGRAMMING & EDITING FUNCTION

- Absolute / Incremental programming	G90 / G91
- Auto. Coordinate system setting	
- Background editing	
- Canned cycle	G73, G74, G76, G80 - G89, G99
- Circular interpolation by radius programming	
- Custom macro B	
- Custom size 512kb	
- Addition of custom macro common variables	
- Decimal point input	
- I / O interface	RS - 232C
- Inch / metric conversion	G20 / G21
- Label skip	
- Local / Machine coordinate system	G52 / G53
- Maximum commandable value	±99999.999mm (±9999.9999 inch)
- No. of Registered programs	500 ea
- Optional block skip	

- Optional stop	M01
- Part program storage	640 m
- Program number	O4-digits
- Program protect	
- Program stop / end	M00 / M02,M30
- Programmable data input	
Tool offset and work offset are entered by G10, G11	
- Sub program	Up to 4 nesting
- Tape code	ISO / EIA Automatic discrimination
- Work coordinate system	G54 - G59
- Additional work coordinate system(48 Pair)	G54.1 P1 - 48 pairs
- Coordinate system rotation	G68, G69
- Extended part program editing	
- Optional angle chamfering / corner R	
- Macro executor	

## OTHERS FUNCTIONS (Operation, Setting &amp; Display, etc)

- Alarm display	
- Alarm history display	
- Clock function	
- Cycle start / Feed hold	
- Display of PMC alarm message	
Message display when PMC alarm occurred	
- Dry run	
- Ethernet function (Embedded)	
- Graphic display	Tool path drawing
- Help function	
- Loadmeter display	
- MDI / DISPLAY unit	
10.4" color LCD, Keyboard for data input, soft-keys	
- Memory card interface	
- Operation functions	Tape / Memory / MDI / Manual
- Operation history display	
- Program restart	
- Run hour and part number display	
- Search function	Sequence NO. / Program NO.
- Self - diagnostic function	
- Servo setting screen	
- Single block	
- External data input	
- Multi language display	

### OPTIONAL SPECIFICATIONS

[illegible]



# NC Unit Specifications Fanuc 32i

DBC 110S

AXES CONTROL	
- Controlled axes	5 (X,Y,Z,W,B)
- Simultaneously controllable axes	
Positioning(G00)/Linear interpolation (G01) : 3 axes	
Circular interpolation (G02, G03) : 2 axes	
- Backlash compensation	
- Emergency stop / overtravel	
- Follow up	
- Least command increment :	0.001mm / 0.0001(inch)
- Least input increment :	0.001mm / 0.0001(inch)
- Machine lock	all axes / Z axis
- Stored pitch error compensation	
Pitch error offset compensation for each axis	
- Stored stroke check 1	Overtravel controlled by software

INTERPOLATION & FEED FUNCTION	
- 2nd reference point return	G30
- Circular interpolation	G02, G03
- Dwell	G04
- Feed per minute	mm / min
- Feedrate override (10% increments)	0 - 200 %
- Jog override	0 - 5000 mm / min
- Linear interpolation	G01
- Manual handle feedrate	0.1/0.01/0.001mm
- Override cancel	M48 / M49
- Positioning	G00
- Rapid traverse override	F0 (fine feed), 25 / 50 / 100 %
- Reference point return	G27, G28, G29
- Skip function	G31
- Helical interpolation	
- NANO AICC (AI Contour Control)	80 block preview
- Thread cutting, synchronous cutting	
- Program restart	
- Automatic corner deceleration	
- Feedrate clamp by circular radius	
- Linear ACC/DEC before interpolation	

SPINDLE & M-CODE FUNCTION	
- M- code function	M 3 digits
- Spindle orientation	
- Spindle serial output	
- Spindle speed command	S5 digits
- Spindle speed override (10% increments)	10 - 150 %
- Rigid tapping	G84, G74
- Polar coordinate interpolation	G12.1 / G13.1
- Scaling	G50, G51

TOOL FUNCTION	
- Cutter compensation C	G40, G41, G42
- Number of tool offsets	200 ea
- Tool length compensation	G43, G44, G49
- Tool number command	T3 digits
- Tool life management	Geometry / Wear and Length / Radius offset memory
- Tool offset memory C	

PROGRAMMING & EDITING FUNCTION	
- Auto. Coordinate system setting	
- Background editing	
- Canned cycle	G73, G74, G76, G80 - G89, G99
- Circular interpolation by radius programming	
- Custom macro B	
- Custom size	512kb
- I / O interface	RS - 232C
- Inch / metric conversion	G20 / G21
- Local / Machine coordinate system	G52 / G53

- Maximum commandable value	±99999.999mm (±9999.9999 inch)
- No. of Registered programs	500 ea
- Optional block skip	
- Optional stop	M01
- Part program storage	640 m
- Program number	O4-digits
- Program protect	
- Program stop / end	M00 / M02,M30
- Programmable data input	
Tool offset and work offset are entered by G10, G11	
- Sub program	Up to 4 nesting
- Tape code	ISO / EIA Automatic discrimination
- Work coordinate system	G54 - G59
- Additional work coordinate system (48 Pair)	G54.1 P1 - 48 pairs
- Coordinate system rotation	G68, G69
- Macro executor	

OTHERS FUNCTIONS (Operation, Setting & Display, etc)	
- Alarm history display	
- Cycle start / Feed hold	
- Display of PMC alarm message	Message display when PMC alarm occurred
- Dry run	
- Loadmeter display	
- MDI / DISPLAY unit	10.4" color LCD, Keyboard for data input, soft-keys
- Memory card interface	
- Operation functions	Tape / Memory / MDI / Manual
- Program restart	
- Search function	Sequence NO. / Program NO.
- Servo setting screen	
- External data input	
- Multi language display	

OPTIONAL SPECIFICATIONS	
- 3rd / 4th reference return	
- Addition of tool pairs for tool life management	512 pairs
- Additional controlled axes	max. 6 axes in total
- Additional work coordinate system	G54.1 P1 - 300 (300 pairs )
- AI HPCC* (High Precision Contour Control) with 64 bit Risc	
	600 block preview
- Automatic corner override	G62
- Chopping function	G81.1
- Cylindrical interpolation	G07.1
- Interpolation type pitch error compensation	
- EZ Guide i (Doosan Infracore Conversational Programming Solution)	
with 10.4" Color TFT	
- Increment system 1/10	
- Manual handle feed 2/3 unit	
- Handle interruption	
- High speed skip function	
- Involute interpolation	G02.2, G03.2
- Machining time stamp function	
- No. of Registered programs	1000 ea
- Number of tool offsets	400 ea
- Optional block skip addition	9 blocks
- Part program storage	1280 / 2560 m
- Polar coordinate command	G15 / G16
- Programmable mirror image	G50.1 / G51.1
- Stored stroke check 2 / 3	
- Tool load monitoring function (Doosan)	
- Tool position offset	G45 - G48
- Position switch	

# Heidenhain iTNC 530

DBC series

AXES CONTROL	
- Controlled axes	5 (X,Y,Z,W,B)
- Simultaneously controllable axes	
Positioning/Linear interpolation 5 axes	
Circular interpolation 2 axes	
Helical interpolation 3 axes	
- Backlash compensation	
- Least command increment :	0.001mm / 0.0001(inch)
- Least input increment :	0.001mm / 0.0001(inch)
- Linear axis error compensation	
- Reversal peaks with circular movement compensation	
- Stick-slip friction compensation	

INTERPOLATION & FEED FUNCTION	
- Straght line In	5 axes
- Circle	In 3 axes
- Helix interpolation	
- Spline interpolation	
- Feed hold	std.
- Feedrate override	0 -150 %
- Manual handwheel feed	1 unit
- Optional block skip	
- Single block	
- Feedforward	

SPINDLE FUNCTION	
- Spindle orientation	
- Spindle override	0 - 150 %
- Spindle position control	

TOOL FUNCTION	
- 3 dimensional tool compensation	
- Number of tool offset	999 ea
- Tool management	

PROGRAMMING & EDITING FUNCTION	
- Heidenhain conversation format programming	
- Program memory	Approx 26GB on hard disk
- No. of registered program	No limit

- Mathematical function	
- Programming with variable	Q parameters
- Calculator	
- Complete list of all current error messages	
- Context-sensitive help function for error message	
- The integrated help system TNC guide	
- Graphical support for programming cycles	
- Comment and structure blocks in the NC program	
- Acture position capture	
- Graphic simulation	
- Plane view	
- Programming graphics	
- Returning to the contour	
- Datum tables	

OTHERS FUNCTIONS (Operation, Setting & Display, etc)	
- Actual speed display	
- Alarm display	
- Display	TFT 15" color
- Clock function	
- Integrated oscilloscope	
- Log(error message and keystroke) use PCs	
- Diagnostic function	
- Trace function	
- Ethernet TCP / IP	
- USB USB1.1	

OPTIONAL SPECIFICATIONS	
- Heidenhain DNC	
- DCM Collision	
- DXF Converter	
- Adaptive feed contour	
- KinematicsOpt	
- Workpiece touch probes	TS-series
- Tool touch probes	TT-series, TL Series

<http://www.doosaninfracore.com/machinetools>



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Machine tools

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Design and specifications are subject to change without prior notice.

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